

**FOURTH SEMESTER B.ARCH. DEGREE
[2017 SCHEME] SPECIAL EXAMINATION, APRIL 2020**

AR 17 47—ENVIRONMENTAL STUDIES

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 5 marks.

1. Write a note on cause and effect of food problem.
2. Mention any five energy efficient buildings observed from your case studies.
3. Write a note on value in biodiversity and state its three types.
4. Mention any five threats to biodiversity.
5. Mention any five causes for any type of pollution.
6. Mention any five effect of marine pollution.
7. Write a note on climate change.
8. Write a note solar energy and its impact in built environment.

(8 × 5 = 40 marks)

Part B

Answer all questions.

Each question carries 15 marks.

1. Describe the cause and effect of over utilization any type of water.

Or

2. Describe the cause and effect of excavation of mineral resources.
3. Describe the characteristic features, structure and function of forest ecosystems.

Or

4. Describe the threats and solution for biodiversity with suitable examples.
5. Explain the cause, effect and control measures of noise and nuclear pollution.

Or

6. Is the climate change affect the existing and type ecosystem. Illustrate with suitable examples.

Turn over

7. What do you mean by the term sustainability and explain the factors to be considered for sustainable development with suitable examples.

Or

8. Bring out the type of products related to building construction can be generated from waste and their impact in built environment.

(4 × 15 = 60 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

**FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) SPECIAL
EXAMINATION, APRIL 2020**

AR 17 46—HISTORY OF ARCHITECTURE—III

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.*

1. Write a note kind of cultural spaces observed in early period of Europe.
2. Sketch and difference observed in Latin and Greek cross plans.
3. Mention and sketch the types of structural components observed in Romanesque Architecture.
4. Sketch the plan and elevation of Pisa cathedral Complex.
5. What are the common elements referred in three types of Gothic Architecture?
6. Sketch the plan and elevation of West Minister Abbey.
7. Mention any five examples referred in Renaissance Architecture.
8. Write a note on Christopher Wren contribution in Architecture.

(8 × 5 = 40 marks)

Part B*Answer all questions.*

1. Describe the spatial organization and geometrical proportion of St. Peters Basilica with suitable sketches.
Or
2. Discuss the techniques adopted in the construction of domes in early European Architecture.
3. Trace the design evolution of Romanesque Architecture from early European Architecture.
Or
4. Describe the spatial organization and techniques adopted in Pisa Cathedral complex with suitable sketches.
5. Discuss the function of structural components and their impact in visual perspective in Notre Dame Paris with suitable sketches.
Or
6. Discuss the function of structural components and their impact in visual perspective in Milan Cathedral with suitable sketches.
7. Discuss with suitable examples “The idea of rebirth and revival of Art and Architecture during Renaissance period”.
Or
8. Discuss the revival of classical orders and principles of Neo classicism.

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) SPECIAL
EXAMINATION, APRIL 2020**

AR 17 44—BUILDING SERVICES-I
(WATER SUPPLY AND SANITATION)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

1. List down the water requirement for various purposes.
2. List the methods of population forecasting.
3. List down the any ten physical characteristics be identified in physical test of water.
4. Mention any five factors to maintain the water distribution pipes.
5. Sketch the municipal waste water treatment system.
6. Write a note on main function of tertiary treatment.
7. Sketch the section of soak pit and label its parts.
8. Differentiate IWC and EWC.

(8 × 5 = 40 marks)

Part B

Answer all questions.

1. Describe surface sources of water supply.

Or
2. Discuss the statement - The incremental increase method of estimating population combines the advantage of other two methods arithmetical increase and geometrical increase?
3. List the types of layout distribution pipes and explain any three types.

Or
4. Explain the theory of disinfection and its minor methods.
5. Describe the biological process of treatment of waste water.

Or
6. Describe the methods of sludge disposal and explain any three types with suitable sketches.
7. Describe the classification of traps with suitable sketches.

Or
8. Sketch the section and plan of septic tank and soak pit of a residential building discuss the design aspects with suitable sketches.

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) SPECIAL
EXAMINATION, APRIL 2020**

AR 17 43—BUILDING MATERIALS AND CONSTRUCTION—V

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

1. Sketch the types of concrete sunshade observed from the case studies state its comparative functional characteristics.
2. Sketch and write a note on function oden stud framing.
3. Sketch the one and two way steel beam systems and state it's any two functions.
4. Sketch types of wooden beam supports.
5. How will you determine the slope of the roof with suitable examples?
6. Sketch the king post truss and label its parts.
7. Mention any five safety precautions to be considered for location vertical transportation systems in any type of buildings.
8. Sketch the section of escalator and label its dimension and parts.

(8 × 5 = 40 marks)

Part B

Answer all questions.

1. Bring out the difference between solid and cavity walls and state its construction techniques and functions with suitable sketches?

Or

2. Draw the plan and section of the following :
 - (a) Three centred concrete arch of size 1.5 m × 2.1 m.
 - (b) Semi-circular stone arch of size 1.5 m × 2.1 m.
3. Describe the following with suitable examples :
 - (a) Semi rigid connections in steel.
 - (b) Open web steel joists.

Or

4. Briefly discuss the different types of foundation with suitable sketches.

Turn over

5. Differentiate the functional characteristics of types of roof referred in your syllabus.

Or

6. Design the king post truss of ware house of size 6 m × 12 m and room height is about 5 m. Draw the plan, section and any two fixing details in suitable scale. Assume the necessary data?
7. Design the wooden stair case for residential building of room height 3 m. Draw the plan, section and baluster fixing details in suitable scale. Assume the necessary data.

Or

8. Design the escalator for commercial building of G+7 floors. Floor height of each floor is about 3.6m. Draw the plan, section and machine room details in suitable scale. Assume the necessary data?

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) SPECIAL
EXAMINATION, APRIL 2020**

AR 17 42—SITE SURVEYING AND ANALYSIS

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.*

1. Mention any five instruments used to conduct any kind of survey.
2. Write a note on local attraction in compass survey.
3. Differentiate Permanent and Temporary adjustments.
4. Write a note on tilting level in levelling.
5. List and sketch the onsite and offsite factors.
6. How to determine the size of rain water drain for campus building?
7. Is the pollution affecting the site context?
8. Sketch the standard dimension of parallel and perpendicular parking layout.

(8 × 5 = 40 marks)

Part B*Answer all questions.*

1. Discuss the types of chain survey referred in your syllabus.

Or

2. (a) Write a note on plotting of a compass survey map through sketches.
(b) Write a note on precautions to be taken in compass survey.
3. Describe the advantages and disadvantages of TSS.

Or

4. The following consecutive readings were taken with a level and 4m levelling staff on a continuously sloping ground at common intervals of 30 m. 0.905 (On A) 1.745, 2.345, 3.125, 3.725, 0.545, 1.390, 2.055, 2.955, 3.455, 0.595, 1.015, 1.850, 2.655 and 2.945 (on B).

The RL of A was 395.00. Calculate the RLs of different points and find the gradient of the line AB.

5. Discuss the importance of site analysis in any kind of project with suitable examples.

Or

6. Is contour play vital role in aesthetic consideration of the site? Illustrate with suitable examples.
7. Describe the impact of proposed development in large scale projects with suitable examples.

Or

8. Explain the process involved in sewage treatment plants.

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION
APRIL 2021**

B.Arch.

AR 12 46—THEORY OF STRUCTURES—II

Time : Three Hours

Maximum : 100 Marks

Part A

Answer any eight questions.

Each question carries 5 marks.

1. Briefly explain Statically Indeterminate Structure and list out the types of indeterminate beams
2. What is the Degree of Indeterminacy for a propped cantilever beam ?
3. Write down the equilibrium equations used in slope deflection method and Demonstrate the applications of slope deflection equations.
4. Define Carryover factor and Distribution factor.
5. Explain how settlement of supports is accounted in to kani's method of analysis of structures.
6. Define hogging and sagging moments.
7. What is meant by load factor and shape factor ?
8. What are the assumptions made in plastic analysis of structures ?

(8 × 5 = 40 marks)

Part B

Answer all questions.

Each question carries 15 marks.

1. Calculate the Degree of statical indeterminacy of the Fig 1 and 2.

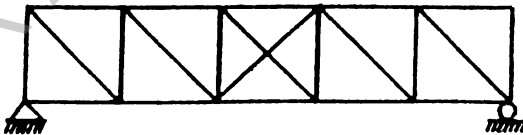


Fig 1

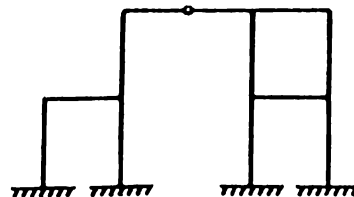


Fig 2

Or

Turn over

2. Determine the support moment and reactions for the continuous beam as shown in Fig 3 using three moment equations.

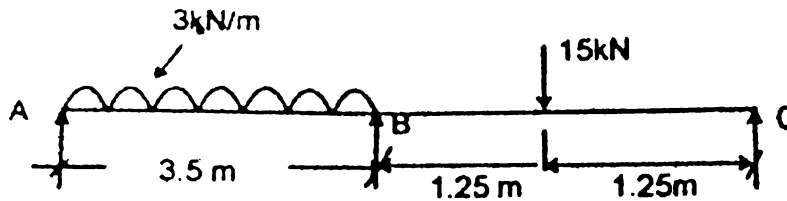


Fig 3

3. The continuous beam ABCD consisting of three spans as shown in Fig 4 Analyse the beam using slope deflection method.

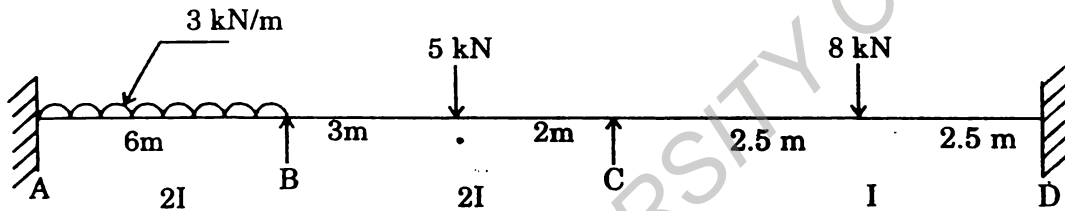


Fig 4

Or

4. Analyse the continuous beam shown in Fig 5 by moment distribution method and sketch the bending moment and shear force diagram.

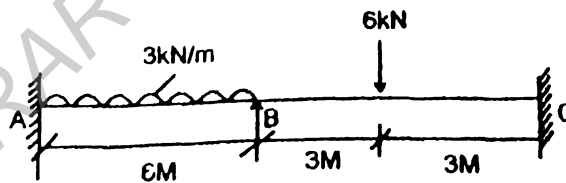


Fig 5

5. (a) (i) Explain Kani's method of solving a non sway frames.
(ii) List out the advantages of Kani's method.

Or

6. Analyse the continuous beam shown in Fig 6 by Kani's method and sketch the BM.

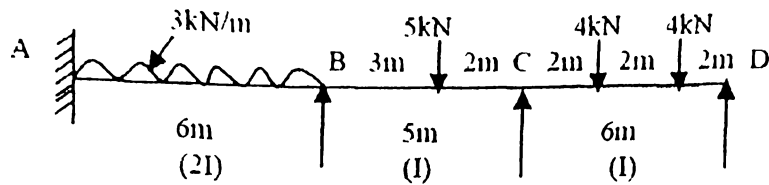


Fig 6

7. A uniform beam of span 4 m and fully plastic moment M_p is simply supported at one end and rigidly clamped at other end. A concentrated load of 15 kN may be applied anywhere within the span. Find the smallest value of M_p such that collapse would first occur when the load is in its most unfavourable position.

Or

8. Calculate the plastic moment capacity required for the continuous beam shown in Fig 7 with working loads.

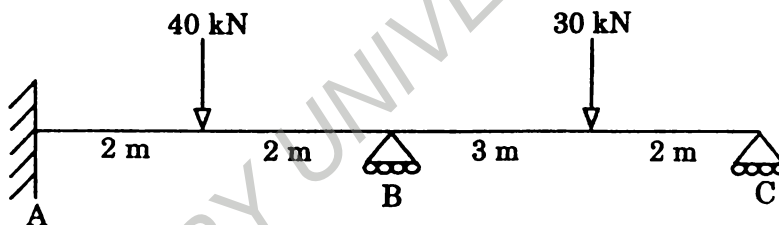


Fig 7

(4 × 15 = 60 marks).

**FOURTH SEMESTER B.ARCH. DEGREE (SUPPLEMENTARY)
[2012 SCHEME] EXAMINATION, APRIL 2021**

B.ARCH.

AR 12 45—SOCIOLOGY AND ECONOMICS

Time : Three Hours

Maximum : 100 Marks

SOCIOLOGY

Part A

1. Write on need to study about sociology in Architecture.
2. List the social process observed in your case study.
3. Write a note on the perviant sub-culture with suitable examples.
4. Write a note on socialization in society.

(4 × 5 = 20 marks)

Part B

1. a) List the primary concept of sociology.
b) Illustrate with suitable examples impact of sociology in Architecture.

Or

2. Explain the social process with suitable examples.
3. Explain the factors of social culture with suitable examples.

Or

4. Discuss about your understanding of culture related concepts in sociology with suitable examples.

(2 × 15 = 30 marks)

ECONOMICS

Part A

1. Differentiate need and demand supply.
2. Differentiate technical and economic efficiency.
3. Write on need on sinking fund.
4. Write a note on effective interest rate.

(4 × 5 = 20 marks)

Turn over

Part B

1. a) What is the need to understand the economics and their impact in Architecture illustrate with suitable examples ?
b) Explain cost concepts and elements of cost.

Or

2. Discuss the factors to be considered in investment criteria with suitable examples.
3. Write a note on the following :
 - a) Determinants of demand.
 - b) Determinants of supply.

Or

4. a) Calculate the EMI for house cost of RS. 32,00,000/-
Initial payment of RS = 5,00,000/-
Interest rate - 10.5 /year.
Loan tenure 13 years.
- b) The saver requires Rs. 12,00,000/- at the end of 18 years for his daughter. Bank interest of 8.4% / year.
Find the compound interest in monthly and yearly.

(2 × 15 = 30 marks)

**FOURTH SEMESTER B.ARCH. DEGREE [2012 SCHEME]
(SUPPLEMENTARY) EXAMINATION, APRIL 2021**

B.Arch.

AR 12 44—LAND SURVEY

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer any eight questions.
Each question carries 5 marks.*

1. Bring out the salient features of working from whole part in survey ?
2. Write a note on magnetic declination in compass survey ?
3. Write a note on bench mark in leveling ?
4. What are the advantages and disadvantages of plane tabelling in survey ?
5. Write a note on temporary and permanent adjustments of a theodolite ?
6. Write a note on vertical and horizontal distance in tachometric survey ?
7. In What way total station survey is advantage than other type of survey ?
8. Mention any five precautions to be taken for total station survey ?

(8 × 5 = 40 marks)

Part B

*Answer all questions.
Each question carries 15 marks.*

1. Describe the ranging and changing of line in chain survey ?

Or

2. Explain clearly the differences between a prismatic pass and surveyors compass ?
3. Describe the in detail the methods of reduction of levels and explain their merits and demerits ?

Or

4. Draw a page of a typical levelling field's book and explain how recordings are recorded ?

Turn over

5. A tachometer with multiplying constant of 50 and an additive constant of 0.30m was setup over a station A and the staff readings obtained on a staff held over station B were 1.690, 1.900 and 2.110. The vertical angle was 8 degree. The staff was held normal to the line of sight. Calculate the reduced level of station B if the RL of plane of collimation was 156.750 and the horizontal distance between stations A and B ?

Or

6. Explain the principle of a tachometer and prove the formulae used for the determination of horizontal and vertical distance by its use ?
7. Express the prismoidal formula for volumes in TSS. ?

Or

8. Discuss the factors to be considered for quantities for excavation ?

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE (SUPPLEMENTARY)
[2012 SCHEME] EXAMINATION APRIL 2021**

B.ARCH.

AR 12 43—HISTORY OF ARCHITECTURE III

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 5 marks.

1. Sketch the squinch arch and state any *four* points for construction of squinch arch.
2. Write down the salient features of surface treatment in early Christian Architecture.
3. Sketch the west minister Abbey and write down any three architectural features.
4. Mention the different styles existed in renaissance period with suitable examples.
5. Write a note on impact of industrial evolution in European architectural styles.
6. Sketch the Eiffel tower and it's any four salient features.
7. Abbreviate CIAM and its any four functions.
8. Mention any *four* modern Architect and their works mentioned in your syllabus.

(8 × 5 = 40 marks)

Part B

Answer all questions.

Each question carries 15 marks.

1. Describe the Architectural features of Hagia Sophia in terms planning and construction techniques ?

Or

2. Is The “structure” plays vital in Romanesque Architecture with suitable examples ?

Turn over

3. Describe with suitable examples - Evolution of structural systems in Gothic Architecture ?

Or

4. Renaissance time is ideal period for revival of Art and Architecture - Illustrate with suitable examples ?

5. Discuss with suitable examples impact of industrial evolution in Architecture and Engineering ?

Or

6. Explain the salient features of Art Nouveau movement with suitable examples ?

7. What do you mean by the term modernism in Architecture ? Discuss the philosophy and implementation in project of any Architect referred in your syllabus with suitable sketches ?

Or

8. Discuss Destijl movement with suitable examples ?

(4 × 15 = 60 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

**FOURTH SEMESTER B.ARCH. DEGREE (SUPPLEMENTARY)
[2012 SCHEME] EXAMINATION, APRIL 2021**

B.ARCH.

AR 12 42—BUILDING CONSTRUCTION MATERIALS AND STRUCTURAL SYSTEM—III

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions.
Each question carries 5 marks.*

1. Differentiate fibre and wired glass.
2. Mention any five properties of glass.
3. Mention any five factors to be considered to design any type of stair case.
4. Write a note on function of inclined slab in staircase.
5. List and sketch the components of stair case.
6. List the any passenger lift and their size available in market.
7. List down the types of construction equipment.
8. Mention any five factors to be considered for preparing the wooden scaffolding in construction.

(8 × 5 = 40 marks)

Part B

*Answer all questions.
Each question carries 15 marks.*

1. Describe the types of glass, and application in construction industry with suitable examples.

Or

2. Describe with suitable examples, functional aspects of glass state its pros and cons in building industry.
3. Design the wooden staircase for residential building of 3m height. Draw the plan, section in 1 : 20 scale and any two fixing detail of handrail and baluster in 1 : 5 scale to suitable scale. Assume the necessary data.

Or

4. a) Examine with suitable examples need and purpose of vertical transportation in any type of building ?

(8 marks)

Turn over

b) Mention the factors to be considered to locate and design any type of vertical transportation system in any type of building. Illustrate with suitable examples ?

(8 marks)

5. Compare the functional and implementation aspects of escalators and lift in buildings with suitable examples.

Or

6. Draw the plan and section in 1 : 20 scale of passenger lift of 12 person's capacity for commercial building. Any two details of lift in 1 : 5 scale. Assume the necessary data.

7. Draw the plan and sectional elevation of wooden scaffolding system for residential building of G+1 structure. Assume the suitable scale and data.

Or

8. Discuss the operational characteristics and maintenance of construction equipment in building industry with suitable examples.

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE [2004 SCHEME]
(SUPPLEMENTARY) EXAMINATION, APRIL 2021**

B.Arch.

AR 01 46—THEORY OF DESIGN—II

Time : Three Hours

Maximum : 100 Marks

Illustrate your answers with neat and relevant sketches.

Part A

Answer all questions.

1. Write short notes on :

- (a) Canonic design.
- (b) Pragmatic design.
- (c) Necessity of user behaviour oriented design.
- (d) Designing play space for primary school children.
- (e) Post Modern style.
- (f) Scope of computer applications in creative design.
- (g) Deterministic models in design.
- (h) One example of Deconstructivist building.

(8 × 5 = 40 marks)

Part B

Answer any four questions.

2. Explain analogic design.
3. Describe the canonic approach to design.
4. What are the various ways that a designer can affect society ?
5. Explain aspects of user behaviour that should be considered to design a successful shopping mall.
6. Explain the relevance of systems theories in relation to architecture.
7. Describe Organic architecture using examples of famous buildings.

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE (2004 SCHEME) EXAMINATION
APRIL 2021**

B.Arch.

AR 01 44—HISTORY OF ARCHITECTURE—III

Time : Three Hours

Maximum : 100 Marks

Part A

Answer eight questions.

Each question carries 5 marks.

1. Sketch the types of structural systems in Gothic Architecture ?
2. Sketch the squinch arch construction.
3. Differentiate the English and new baroque style.
4. Sketch the elevation of plan and elevation of Ducai palace.
5. Sketch the plan and section of Eiffel tower.
6. Write a note on rationality in Architecture.
7. List any four projects of Alvar Alto.
8. Write a note on Hasan Fathy design philosophy with respect to vernacular Architecture.

(8 × 5 = 40 marks)

Part B

Answer all questions.

Each question carries 15 marks.

1. Briefly discuss through sketches, salient features of St. Peter's Basilicas ?

Or

2. Describe the kind of structural systems observed through byzantine and saracenic Architecture. Illustrate through suitable sketches.

Turn over

3. Briefly discuss through sketches, salient features of St. Rome Cathedral ?

Or

4. Discuss through suitable examples, the contribution of Christopher Wren ?

5. Justify the statement through suitable examples. Is demand for new building types is raised after industrial revolution ? Why ?

Or

6. Discuss through suitable examples, the contribution of Louis Sullivans in American Architecture ?

7. How the influence of visual arts play vital role in Walter Gropius ? Illustrate with suitable sketches.

Or

8. Discuss the design philosophy of BV Doshi observed in his projects. Illustrate with suitable sketches.

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE (2004 SCHEME) EXAMINATION
APRIL 2021**

B.Arch.

AR 01 43—BUILDING CONSTRUCTION, MATERIALS AND STRUCTURAL SYSTEM—III

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer any **eight** questions.*

Each question carries 5 marks.

1. Write a note on ingredients used in concrete and their properties.
2. Write a note on curing of concrete.
3. Sketch the window and label its technical terms.
4. Differentiate corner and bay window.
5. List the types of carpet types used as flooring materials.
6. Sketch the jack arch and label its parts.
7. List the causes for dampness in roof.
8. Sketch the roof garden and label its parts.

(8 × 5 = 40 marks)

Part B

*Answer **all** questions.*

Each question carries 15 marks.

1. Explain the process of involved in the form work of concreting with suitable sketches.

Or

2. Draw to the suitable scale, the reinforcement details for RCC foundations, columns and beam for a residential building. Assume the necessary data.
3. Explain with suitable sketches of different types of RCC Floors.

Or

4. Draw to suitable scale of the plan, section and any one joining details of timber floor of restaurant space of size 3.6 m × 4.8 m.

Turn over

5. Draw the plan, elevation, section and any *two* fixing details of aluminium window of size 1.2 m × 1.5 m. Assume the necessary data.

Or

6. Compare steel and wooden doors in terms of durability and ketch the fixing details and label its parts.
7. Discuss through sketches process involved in application techniques of construction joint.

Or

8. Discuss through sketches importance of cavity walls and its application.

(4 × 15 = 60 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

**FOURTH SEMESTER B.ARCH. DEGREE [2004 SCHEME]
(SUPPLEMENTARY) EXAMINATION, APRIL 2021**

B.Arch.

AR 01 42—LAND SURVEYING

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer any **eight** questions.
Each question carries 5 marks.*

1. Write a note second principle of surveying ?
2. When the chain survey recommended ?
3. Write a note on two point problem ?
4. Differentiate temporary and permanent adjustments ?
5. Differentiate repetition and reiteration ?
6. Write a note on characteristics of tachometer ?
7. List the different types of cross section for computation of volumes ?
8. Abbreviate trapezoidal rule to calculate the volume ?

(8 × 5 = 40 marks)

Part B

*Answer **all** questions.
Each question carries 15 marks.*

1. List and sketch the any *ten* conventional symbols used for surveying ?

Or

2. Discuss the classification of survey on the basis of instruments ?

3. Discuss the types of errors and precautions to be taken in to consideration for in plane tabling ?

Or

Turn over

4. The following consecutive readings were taken with a level and 4 m levelling staff on a continuously sloping ground at common in traverse of 30 m.

0.905 (on A) 1.745, 2.345, 3.125, 3.725, 0.545, 1.390, 2.055, 2.950, 3.455, 0.595, 1.015, 1.850, 2.655, 2.945 (on B). The RL of A was 395.500. Calculate the RL of different points and find the gradient of the line AB.

5. Describe the methods of tacheometry ?

Or

6. Describe the process of measuring the horizontal angle ?
7. Discuss the methods of aerial survey referred in your syllabus ?

Or

8. A railway embankment 500 m long has a formation level width of 9 m and side slope 2 : 1 is to be constructed. The ground levels every 100 m along the centre line are :

Distance (M)	0	100	200	300	400	500
GL-M	107.8	106.3	110.5	111.0	110.7	112.2

The embankment has a rising gradient of 1.2 m per 100 m and the formation level is 110.5 m at zero chainage. Assuming the ground to be level across the centre line, compute the volume of earth work.

(4 × 15 = 60 marks)

**FOURTH SEMESTER B.ARCH. DEGREE (SUPPLEMENTARY)
[2004 SCHEME] EXAMINATION, APRIL 2021**

B.ARCH.

AR 01 41—THEORY OF STRUCTURES—II

Time : Three Hours

Maximum : 100 Marks

Part A

Answer eight questions.

Each question carries 5 marks.

1. How is Castigliano's first theorem different from Castigliano's second theorem ?
2. Write short note on Muller-Breslau's principles.
3. Differentiate between statically determinate structures and indeterminate structures.
4. Write a note on total degree of indeterminate and write down three classifications.
5. Mention the terms used in Kani's method.
6. Write down the three concepts mentioned in the moment distribution method.
7. What are the components of a suspension bridge ?
8. Write short notes on shape factor in plastic theory.

(8 × 5 = 40 marks)

Part B

Answer all question.

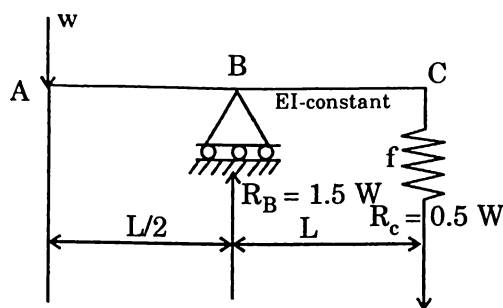
Each question carries 15 marks.

1. A simply supported beam of span 'L' carries a concentrated load 'W' at distance 'A' and 'B' from the two ends. Assuming uniform flexural rigidity. Determine the strain energy stored by the beam.

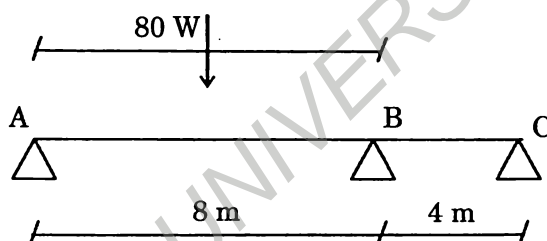
Or

Turn over

2. Determine the deflection of the end A of the beam shown in figure. The flexibility of the spring is F :



3. Write short notes on degree of indeterminacies, and analyze by force method and draw the shear force and bending moment diagram for the beam :

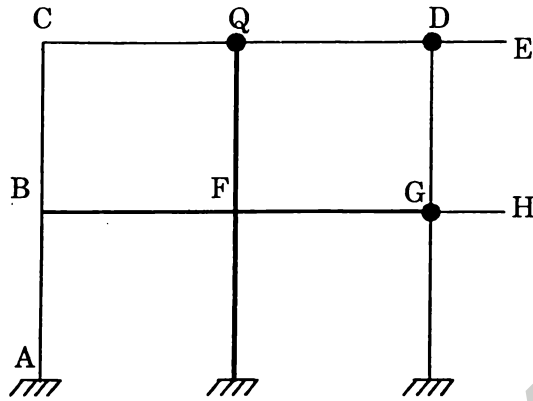


Or

4. A three span continuous beam ABCD is supported on simply supports A, B, C and D. The span AB, BC and CD are of equal length being 4 m. each. The beam has uniform flexural rigidity throughout its 12 m. length. Analyze the beam by using slop deflection method if the beam carries a Udl of 3 kn/m. on its span AB. Draw BM and SF diagrams.
5. Describe in detail the two methods of analysis of statically indeterminate structures.

Or

6. Figure showing a multistory frame having a hinge at joint Q. Determine its : (a) External ; and (b) Internal indeterminacy.



7. A suspension bridge of 120 m. span, 2 hinged stiffening girders supported by 2 cables having central dip of 12 meters. The dead load on the bridge is 10 kn/sq.m and live load is 15 kn./sq.m which covers the left half of the span. Determine the shear force and bending moment at 20 m. from the left end. Also determine the maximum tension for this position of the load. The roadway is 5.5 m.

Or

8. Write detailed notes on shape factor, plastic hinge concept and plastic modulus.

(4 × 15 = 60 marks)